Developer Guide | PUBLIC
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Geolocation: Geofence

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Content

1 Geofence

Overview

In SAP IoT, you can define geolocations that fall into one of the two categories "point of interest" (POI) or "area of interest" (AOI). For the latter, you can set up an additional entity named geofence. A geofence can be seen as a virtual fence around an area of interest, such as:

- Region
- Town
- Production Plant
- Harbor Area

There are numerous business-relevant questions that are related to such areas, for example:

- Has a freight train already reached a certain region of the country so that we can estimate the time of arrival at its destination?
- Can a truck carrying dangerous goods enter a particular town area, or is it mandatory to avoid that area and take a detour for reasons of public security?
- Has a truck already entered the outer boundary of a production plant so that we know whether we have fulfilled our delivery time agreement or not?
- Can a truck heading for a harbor expect immediate clearance upon arrival, or is the harbor area overcrowded so that the truck must be redirected to an external waiting space first?
- After trespassing the boundary of a production plant, did our truck adhere to the speed limits that are in effect in the plant area?

This kind of questions can be answered with SAP IoT by setting up geofence configurations. In a geofence configuration, you specify the location-related properties of a specific thing type (like a truck) and the kind of events that shall be raised when an instance of the thing type reaches or crosses a given position based on its current GPS coordinates. You can then associate the geofence with a time series data segment to specify the rules and actions to be executed when a particular event (like "truck 129 has reached ACME production plant, gate North") occurs.

Related Information

Segment Service: Overview
Geolocations

1.1 Create a Geofence Configuration

Process steps for creating a geofence configuration

Context

A geofence configuration defines when to trigger an event for a thing based on a selected property set. That is, you can control whether an event shall be raised for every thing derived from the specified thing type that enters or exits a geofence based on the provided coordinate fields for latitude and longitude of the thing position.

> **i** Note
>
> - The combination of values used for a geofence configuration must be unique. That is, duplicate instances of geofence configurations are **not** allowed.
> - In the *New Fence Configuration* dialog box, you can ignore the *ID* field on top. The system generates a unique value for this field upon creation of a new configuration.

Procedure

1. From the launchpad, start the Geofence Configurations app.

   The system presents the list of configurations available in the system.
2. Choose *Create*.
3. In the *Property Set* field, expand the value help ( ).

   The system presents a dialog with additional selection criteria for the property set.
4. In the *Package* field, expand the value help ( ) and choose the desired package.
5. In the *Thing Type* field, expand the value help ( ) and choose the desired thing type.

   The system populates the Property Sets list with all property sets that are assigned to the thing type.
6. Choose the desired property set.

   The system navigates back to the *New Fence Configuration* dialog box.
7. From the fields that exist in the property set, choose the one that you want to use as the *Latitude Field* as well as the one that you want to use as the *Longitude Field*.

   > **i** Note
   >
   > For both latitude as well as longitude, only properties can be assigned that have been defined with one of the following data types: Decimal Number, Float, or GeoJSON.
8. In the *Events* section, specify whether the system shall raise events upon entering, exiting, or both entering and exiting the fence. You can also specify that no such events are raised.

9. Tick the *Track Unassigned* checkbox to ensure that even things that have **not** been assigned to any geofence shall be tracked by the system.

> **i** Note
>
> If this setting is active, the system evaluates the thing position against **all** defined geofences, which can result in a significant increase of processing time. Therefore, we recommend using this feature with care.

10. Check your settings. If everything is OK, choose *Save*.

1.2 Maintain a Geofence Configuration

Process steps for maintaining a geofence configuration

Context

As an administrator, you want to modify the settings that have been defined for an existing geofence configuration.

Procedure

1. From the launchpad, start the Geofence Configurations app.

   The system presents the list of configurations available in the system.
2. Use the *Search* field to find the configuration you want to modify. Alternatively, you can also use the *Thing Type* and *Property Set* filter criteria to narrow down the number of configurations presented in the list.
3. In the list of configurations, click the one you want to change.

   The system displays the *Edit Fence Configuration* dialog box.
4. Change the configuration settings as required and choose *Save*.

   The system displays a confirmation message and takes you back to the entry screen of the app.

> **i** Note
>
> The combination of values used for a geofence configuration must be unique. That is, duplicate instances of geofence configurations are **not** allowed.

1.3 Delete a Geofence Configuration

Process steps for deleting a geofence configuration.

Context

As an administrator, you want to delete one or more geofence configurations, for example, to get rid of some outdated configurations that are no longer needed.

> ⚠ Caution
>
> The system cannot check the usage relationships between a geofence configuration and any rules that may rely on the geofence. Therefore, it's up to you to verify that the configurations you delete are no longer used by any rules.

Procedure

1. From the launchpad, start the Geofence Configurations app.

   The system presents the list of configurations available in the system.
2. Use the *Search* field to find the configuration you want to modify. Alternatively, you can also use the *Thing Type* and *Property Set* filter criteria to narrow down the number of configurations presented in the list.

   > → Tip
   >
   > Searching for configurations associated with a particular thing type comes in handy whenever changes to your physical devices have been made, which, in most cases, calls for mirroring the new device with a newly created thing type.
3. Select the configurations to be deleted by ticking the checkbox in the leftmost column of the list.

   > → Tip
   >
   > If your selection reflects precisely the set of configurations to be deleted, you can use the *Select All* checkbox in the header row of the list instead of selecting each row individually.
4. Choose `Delete`.

   The system displays a warning message.
5. If you are sure that you want to delete the selected configurations, choose *OK*.

   The system navigates you back to the entry screen of the app.

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